Amendments to the Claims

Please cancel Claims 9-10, 12-13, 22, 24-26, 31-34, 38-40 and 45. Please amend Claim 7. The Claim Listing below will replace all prior versions of the claims in the application:

Claim Listing

Claim 1 (previously presented): A method of producing a mouse, wherein mouse non-inbred pluripotent ES cells are introduced into mouse tetraploid blastocysts by injection under conditions that result in production of an embryo and the resulting embryo is transferred into a foster mother which is maintained under conditions that result in development of live offspring, wherein said foster mother is a mouse.

Claims 2-3 (canceled)

Claim 4 (previously presented): The method of claim 1, wherein injection is piezo microinjection.

Claim 5 (previously presented): A method of producing a mouse embryo comprising injecting mouse non-inbred ES cells into mouse tetraploid blastocysts and maintaining the resulting tetraploid blastocysts under conditions that result in formation of embryos, thereby producing a mouse embryo.

Claim 6 (canceled)

Claim 7 (currently amended): The method of claim 5, wherein the mouse non-inbred ES cells are mutant mouse non-inbred ES cells and are injected into ~~non-human~~ mouse tetraploid blastocysts by piezo microinjection.

Claims 8-13 (canceled)

Claim 14 (previously presented): A method of producing a mutant mouse, wherein mouse non-inbred pluripotent ES cells comprising at least one mutation in genomic DNA are introduced into mouse tetraploid blastocysts by injection under conditions that result in production of an embryo and the resulting embryo is transferred into a foster mother which is maintained under conditions that result in development of live offspring, thereby producing a mutant mouse, wherein said foster mother is a mouse.

Claims 15-16 (canceled)

Claim 17 (previously presented): The method of claim 14, wherein injection is piezo microinjection.

Claim 18 (previously presented): A method of producing a mutant mouse embryo comprising injecting mutant mouse non-inbred ES cells into mouse tetraploid blastocysts and maintaining the resulting tetraploid blastocysts under conditions that result in formation of embryos, thereby producing a mutant mouse embryo.

Claim 19 (canceled)

Claim 20 (previously presented): The method of claim 18, wherein mutant mouse non-inbred ES cells are injected into mouse tetraploid blastocysts by piezo microinjection.

Claims 21-26 (canceled)

Claim 27 (previously presented): A method of producing a mutant mouse, comprising: (a) introducing mouse non-inbred ES cells comprising at least one mutation in genomic DNA into mouse tetraploid blastocysts by injection, thereby producing

mouse blastocysts containing mouse non-inbred ES cells; (b) maintaining the product of (a) under conditions that result in production of embryos; (c) introducing an embryo into a pseudopregnant female mouse; and (d) maintaining the female mouse into which the embryo is introduced under conditions that result in development of live offspring, thereby producing a mutant mouse.

Claim 28 (canceled)

Claim 29 (previously presented): The method of claim 27, wherein injection is piezo microinjection.

Claim 30 (original): The method of claim 29, wherein the at least one mutation in genomic DNA is a gene knockout or exogenous DNA incorporated into the genomic DNA.

Claims 31-34 (canceled)

Claim 35 (previously presented): A method of producing a mouse, comprising: (a) introducing mouse non-inbred ES cells into mouse tetraploid blastocysts by injection, thereby producing mouse blastocysts containing mouse non-inbred ES cells; (b) maintaining the product of (a) under conditions that result in production of embryos; (c) introducing an embryo into a pseudopregnant female mouse; and (d) maintaining the female mouse into which the embryo is introduced under conditions that result in development of live offspring, thereby producing a mouse.

Claim 36 (canceled)

Claim 37 (previously presented): The method of claim 35, wherein injection is piezo microinjection.

Claims 38-40 (canceled)

Claim 41 (previously presented): A method of producing a mutant mouse, wherein mouse non-inbred pluripotent ES cells comprising at least one mutation in genomic DNA are introduced into mouse tetraploid blastocysts by injection under conditions that result in production of an embryo and the resulting embryo is transferred into a foster mother which is maintained under conditions that result in development of live offspring, wherein said foster mother is a mouse.

Claim 42 (original): A method of producing a mutant mouse that is derived from a single non-inbred ES cell clone, comprising breeding a mutant male mouse and a mutant female mouse, wherein the male mouse and the female mouse or an ancestor thereof were produced from the same non-inbred male ES cell and the female mouse is an XO female.

Claim 43 (original): The method of claim 42, wherein the non-inbred cell clone is a non-inbred F1 cell clone.

Claim 44 (previously presented): A method of producing mouse XO F1 ES cells, comprising introducing into mouse male F1 ES cells a negative selection marker, under conditions appropriate for insertion of the negative selection marker in the Y chromosome of mouse male F1 ES cells, thereby producing a mixture of mouse male F1 ES cells comprising male F1 ES cells in which the negative selection marker in inserted in the Y chromosome and other male F1 ES cells, some of which do not contain a Y chromosome; subjecting the resulting mixture to conditions that result in the death of male F1 ES cells in which the Y chromosome has the negative selection marker inserted therein and do not result in the death of male F1 ES cells that lack a Y chromosome and are XO F1 ES cells, thereby producing mouse XO F1 ES cells

Claim 45 (canceled)

Claim 46 (original): A method of producing a mutant mouse strain, comprising breeding a mutant male mouse and a mutant female mouse, wherein the mutant male mouse and the mutant female mouse or an ancestor thereof were derived from the same non-inbred male mouse ES cell clone and the mutant female mouse is an XO female.

Claim 47 (previously presented): The method of claim 46, wherein the non-inbred male mouse ES cell clone is an F1 male mouse ES cell.

Claim 48 (original): The method of claim 47, wherein the mutant XO female mouse or an ancestor thereof was derived from an male mouse F1 ES cell by knocking out the Y chromosome of the F1 ES cell, thereby producing an XO F1 ES cell; introducing the XO F1 ES cell into a tetraploid mouse blastocyst under conditions that result in production of an embryo and transferring the resulting embryo into a foster mother which is maintained under conditions that result in development of live offspring, thereby producing an XO female offspring.